

CLAIMS

What is claimed is:

1. A method for designing a zinc finger protein comprising a first (F1), a second
5 (F2), and a third (F3) zinc finger, ordered F1, F2, F3 from N-terminus to C-terminus that
binds to a target site comprising, in 3' to 5' direction, a first (S1), a second (S2), and a
third (S3) target subsite, each target subsite having the nucleotide sequence GNN, the
method comprising the steps of

selecting the F1 zinc finger such that it binds to the S1 target subsite, wherein if
10 S1 comprises GAA, F1 comprises the amino acid sequence QRSNLVR; if S1 comprises
GAG, F1 comprises the amino acid sequence RSDNLAR; if S1 comprises GAC, F1
comprises the amino acid sequence DRSNLTR; if S1 comprises GAT, F1 comprises the
amino acid sequence QSSNLAR; if S1 comprises GGA, F1 comprises the amino acid
sequence QSGHLAR; if S1 comprises GGG, F1 comprises the amino acid sequence
15 RSDHLAR; if S1 comprises GGC, F1 comprises the amino acid sequence DRSHLRT; if
S1 comprises GGT, F1 comprises the amino acid sequence QSSHLTR; if S1 comprises
GCA, F1 comprises QSGSLTR; if S1 comprises GCG, F1 comprises RSDDLTR; if S2
comprises GCG, F2 comprises RSDDLQR; if S1 comprises GCC, F1 comprises
ERGTLAR; if S1 comprises GCT, F1 comprises the amino acid sequence QSSDLTR; if
20 S1 comprises GTA, F1 comprises the amino acid sequence QSGALTR; if S1 comprises
GTG, F1 comprises the amino acid sequence RSDALTR; if S1 comprises GTC, F1
comprises the amino acid sequence DRSALAR;

selecting the F2 zinc finger such that it binds to the S2 target subsite, wherein S2
comprises GAA, F2 comprises the amino acid sequence QSGNLAR; if S2 comprises
25 GAG, F2 comprises the amino acid sequence RSDNLAR; if S2 comprises GAC, F2
comprises the amino acid sequence DRSNLTR; if S2 comprises GAT, F2 comprises the
amino acid sequence TSGNLVR; if S2 comprises GGA, F2 comprises the amino acid
sequence QSGHLQR; if S2 comprises GGG, F2 comprises the amino acid sequence
RSDHLSR; if S2 comprises GGC, F2 comprises the amino acid sequence DRSHLAR; if
30 S2 comprises GGT, F2 comprises the amino acid sequence TSGHLSR; if S2 comprises
GCA, F2 comprises the amino acid sequence QSGDLTR; if S2 comprises GCC, F2
comprises the amino acid sequence DRSDLTR; if S2 comprises GCT, F2 comprises the

amino acid sequence QSSDLTR; if S2 comprises GTA, F2 comprises the amino acid sequence QSGALAR; if S2 comprises GTG, F2 comprises the amino acid sequence RSDALSR; if S2 comprises GTC, F2 comprises the amino acid sequence DRSALAR; and

5 selecting the F3 zinc finger such that it binds to the S3 target subsite, wherein if S3 comprises GAA, F3 comprises the amino acid sequence QSGNLAR; if S3 comprises GAG, F3 comprises the amino acid sequence RSDNLTR; if S3 comprises GAC, F3 comprises the amino acid sequence DRSNLTR; if S3 comprises GAT, F3 comprises the amino acid sequence TSANLSR; if S3 comprises GGA, F3 comprises the amino acid sequence QSGHLQR; if S3 comprises GGG, F3 comprises RSDHLSR; if S3 comprises GGT, F3 comprises the amino acid sequence TSGHLVR; if S3 comprises GCA, F3 comprises the amino acid sequence QSGDLTR; if S3 comprises GCG, F3 comprises the amino acid sequence RSDDLTR; if S3 comprises GCC, F3 comprises the amino acid sequence DRSDLTR; if S3 comprises GCT, F3 comprises the amino acid sequence QSSDLQR; if S3 comprises GTG, F3 comprises RSDALTR; and if S3 comprises GTC, F3 comprises the amino acid sequence DRSALAR;

thereby designing a zinc finger protein that binds to a target site.